Creating an Effective Swap and Building the Risk Management Process

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Overview of Presentation

- CalHFA's views on swaps
- Building the risk management process
- Creating an effective swap
- Testing for swap effectiveness
- Analyzing the performance of VRDOs
  - Monitor the performance of the remarketing agents
  - Estimate the trading values of notable attributes
- Other lessons learned on swaps

CalHFA's experience with swaps

- Started the swap program in 2000
- Outstanding swap notional
  - fixed-payer swaps: $4,709 million (130 swaps)
    - % of LIBOR: $3,358 million
    - BMA: $580 million
    - Taxable: $771 million
  - basis swaps: $643 million
    - # of swaps: 14
  - # of counterparties: 13

Common views on swaps

- Swaps are too good to be true
  - Achieve two conflicting goals at the same time
    - Lower cost of funds for issuers
    - More profits for the underwriters
  - Why worry about risks?
- Basis risks are not important
  - If the floating swap receipts are less than the bond payments, this is equivalent to having some unhedged bonds. And unhedged bonds may be desirable to hedge balance sheet risks.

CalHFA's views on swaps

- Many risks involved in swaps
  - Basis/Tax Risk
  - Counterparty Risk
  - Amortization Risk (for asset-based financings)
- To hedge or not to hedge
  - Want hedged debt
    - Use an effective swap formula (minimize basis risk)
  - Want unhedged debt
    - Well, don't hedge
    - Can better understand and manage the risks when hedged and unhedged are clearly defined and separated
- Be careful about using swaps as investments
  - Establish programmatic ties
  - Can the desired effect be achieved in the cash market?

Building the risk management process

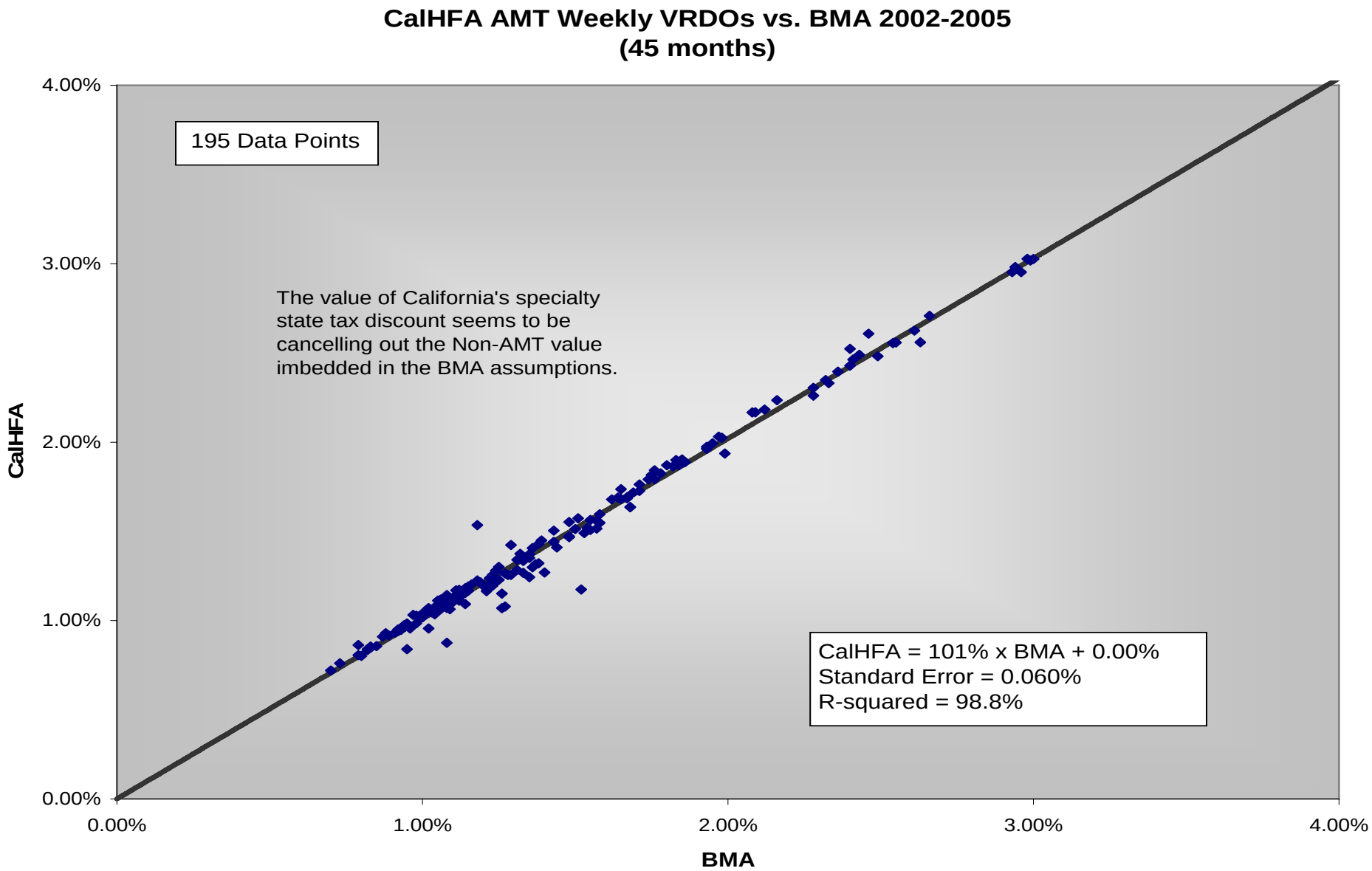
- Ongoing monitoring of actual experience
  - Quantify basis mismatch risks
  - Analyze the performance of variable rate bonds
    - Monitor the performance of the remarketing agents
    - Estimate the trading values of notable attributes
- Testing tolerance levels
  - As specified by management/swap polices
- Taking necessary corrective actions
  - Fine tune swap formula over time to achieve better hedges – to minimize basis mismatch risk
  - Limit additional exposure to underperforming remarketing agents
  - Add incremental exposure to outperforming VRDO attributes

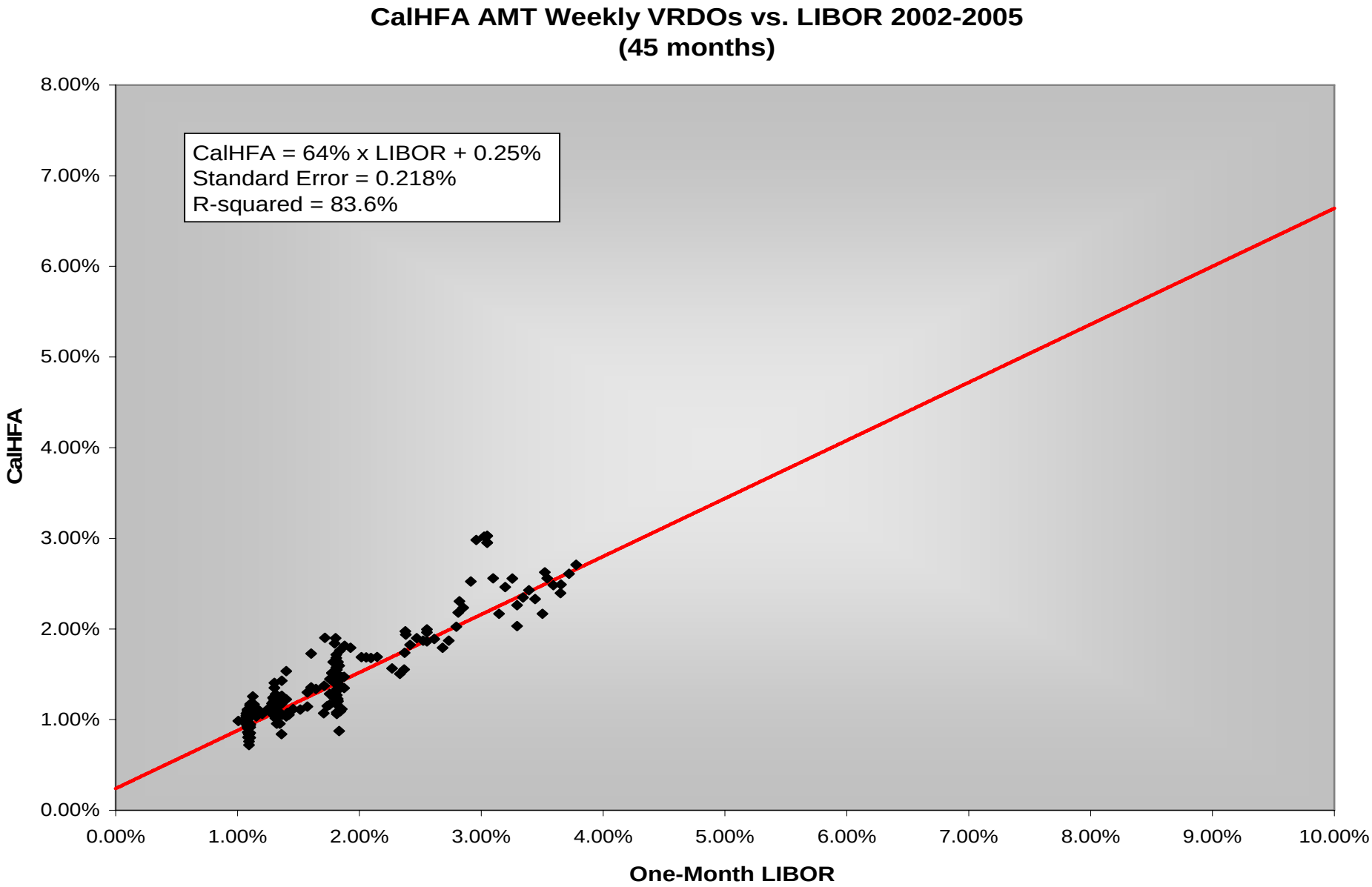
Creating an effective swap

- Customize swap formula to the underlying variable rate bonds
- Potential adjustments to swap formula
  - Tax Status
  - Bond Reset Periodicity
  - Credit enhancements
    - Liquidity facility
    - Bond insurance

Use actual history to create the swap formula

- Using two historical relationships
  - Actual variable rate history since 2000 vs BMA
  - BMA vs LIBOR since 1990
- Created two baseline swap formula (AMT-weekly):
  - 101%*BMA
  - 64%*LIBOR + 25bps


CalHFA AMT Weekly VRDOs vs. BMA 2002-2005
(45 months)
195 Data Points
The value of California's specialty state tax discount seems to be cancelling out the Non-AMT value imbedded in the BMA assumptions.
CalHFA = 101% x BMA + 0.00%
Standard Error = 0.060%
R-squared = 98.8%
CalHFA
BMA
0.00%
1.00%
2.00%
3.00%
4.00%


CalHFA AMT Weekly VRDOs vs. LIBOR 2002-2005
(45 months)
CalHFA = 64% x LIBOR + 0.25%
Standard Error = 0.218%
R-squared = 83.6%
CalHFA
8.00%
7.00%
6.00%
5.00%
4.00%
3.00%
2.00%
1.00%
0.00%
0.00%
1.00%
2.00%
3.00%
4.00%
5.00%
6.00%
7.00%
8.00%
9.00%
10.00%
One-Month LIBOR

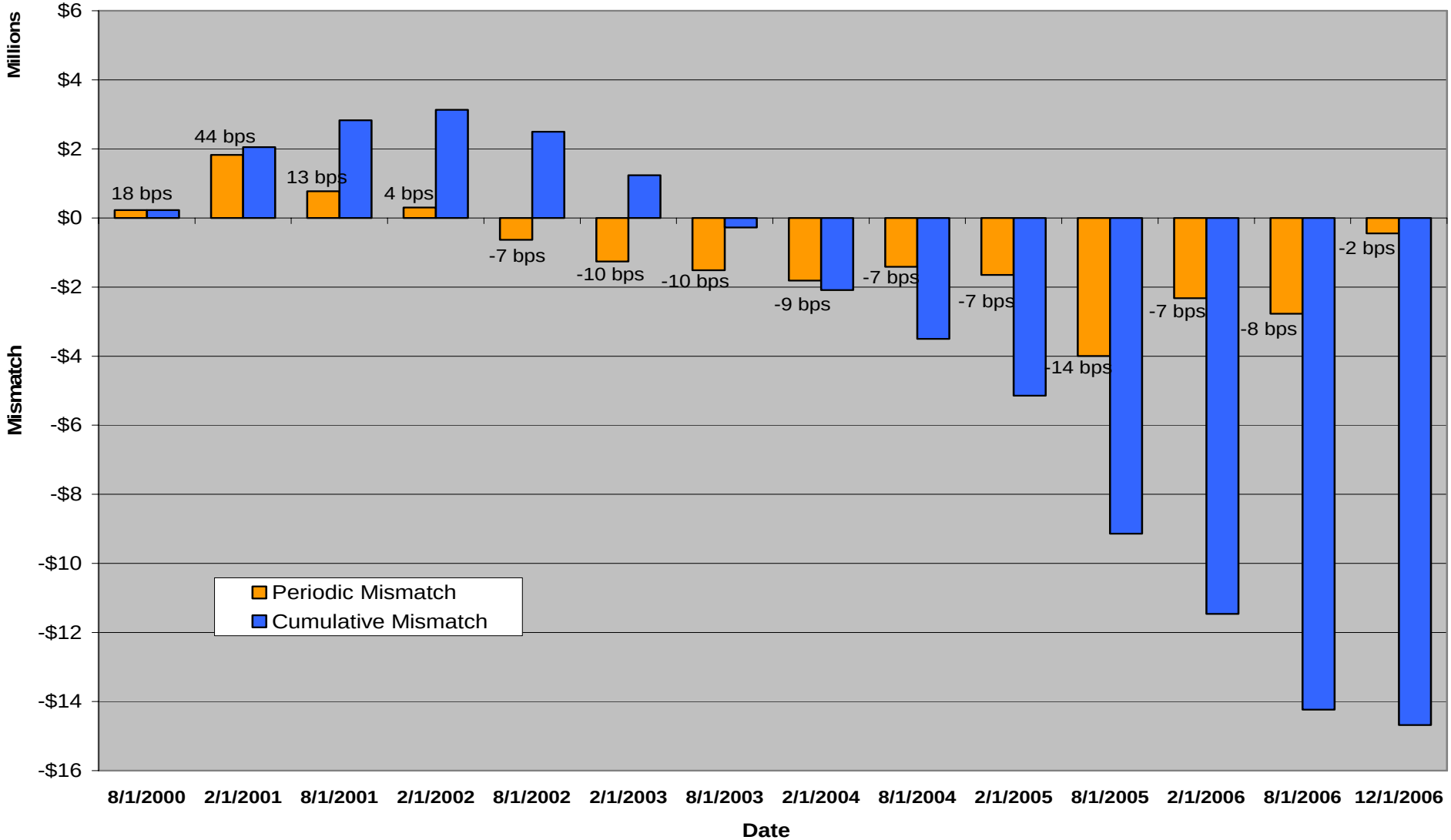
Use actual history to create the swap formula (cont.)

- Two structural adjustments on either formula:
  - AMT vs non-AMT: 8 bps
  - Weekly vs daily resets: 2% of LIBOR
- Adjust for credit enhancements on a case by case basis

Testing for swap effectiveness

- The goal is to experience zero basis mismatch
- CalHFA monitors its swap effectiveness and basis risks on a bimonthly basis
  - Cumulative basis mismatch exceeds $14 million
  - Range in basis mismatch in basis points
    - In favor of CalHFA: +44 bps
    - Against CalHFA: -14 bps

Basis Mismatch - 12/01/2006
All Hedged Bonds



Analyzing the performance of VRDOs

- Monitor the performance of the remarketing agents
  - The performance of the remarketing agents can vary dramatically from time to time
  - Contributes to the basis mismatch variance
- CalHFA has created an analytical model to evaluate the relative performance of its remarketing agents
  - Distribute “report cards” on a quarterly basis
  - Follow by conference calls with the short-term desks
  - Don’t assume anything
    - Some Act/360 bonds are being remarketed as Act/Act
  - Ask about inventory levels
- Avoid placing new issues with underperforming remarketing agents

Performance Review for Remarketing Agents

As of October 1, 2006

Remarketing Agent: ***Bank #1***

Remarketing Agent Contact: **Fred Banker** **(###) ###-####**

Performance Review of Remarketing Agent:

	6 Month Avg (April 1 thru October 1, 2006)		1 Year Avg (October 1, 2005 thru October 1, 2006)	
	Spread to Best	Cost Over Best	Spread to Best	Cost Over Best
VRDO-Tax Exempt-(HMRB, MFIII)	+ 2.2 bp	$81,000	+ 1.0 bp	$128,000
VRDO - Taxable - (HMRB)	+ 3.1 bp	$6,000	+ 2.9 bp	$23,000
Total Cost:		$87,000		$151,000

Generic Spreads for CalHFA VRDO's:

	6 Month Avg (April 1 thru October 1, 2006)	1 Year Avg (October 1, 2005 thru October 1, 2006)
Comparison of Indices		
Taxable VRDO's vs. 1M LIBOR	+ 1.5 bp	- 1.6 bp
AMT VRDO's vs. BMA	-	-
AMT Auction vs. BMA	+ 5.2 bp	+ 5.1 bp
Valuation of Attributes (VRDO's)		
AMT (97%) vs. Non-AMT (3%)	+10.5 bp	+10.3 bp
Uninsured (63%) vs. Insured (37%)	+1.0 bp	+1.3 bp
Weekly (75%) vs. Daily (25%)	+5.6 bp	+8.1 bp
Adjusted Indices		
Weekly Insured AMT VRDO's vs. BMA	+1.4 bp	+1.0 bp
Daily Insured AMT VRDO's vs. BMA	-4.2 bp	-7.1 bp

Description of the Index:

The above spreads are calculated by comparing an index of CalHFA bonds against indices of bonds remarketed by each agent. A positive spread means the remarketing agent's performance was worse by comparison with its peers. The indices are calculated on a weekly basis to match BMA's reset dates; bonds with resets other than weekly are converted to a weekly rate by averaging the reset rates for each week. The indices are calculated after adjusting for day count to conform all indices to Actual/Actual. The indices are also adjusted for the following factors prior to comparison to the overall CalHFA index: Tax Status, Reset Periodicity, Insurance, Indenture, and Liquidity Provider.

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Analyzing the performance of VRDOs (cont.)

- Estimate the trading values of notable attributes (use the historical data to test what you are hearing)
  - Credit enhancements
    - Insured vs non-insured
    - Handicaps on liquidity providers
  - Reset frequency
    - Daily vs weekly
- Add outperforming attributes to new issues
  - Opportunistically convert old issues
  - Market dynamics can be fickle – outperformance might be temporary

Other lessons learned on swaps

- Keep it simple
  - Proprietary trades are expensive to execute and terminate
  - Complicated trades can cause administrative headaches
- Maintain a long-term view
  - Modifying a “bad trade” with a “trade du jour”
    - in 2004, the BMA to LIBOR ratio was at 87% (2/1/03 to 2/1/04)
    - In 2006, the BMA to LIBOR ratio was at 68% (2/1/06 to 2/1/07)
- Negotiate aggressively on swap spread (p&l)
  - Profits are calculated/realized in present value
    - On a non-option adjusted basis
    - On the notional amount of the trade, not the underlying hedge (approx. 65% of the notional for tax-exempt)
- Don’t forget to negotiate the terms of your exit strategy
  - Muni swaps are longer in duration
  - Consider purchasing par termination options